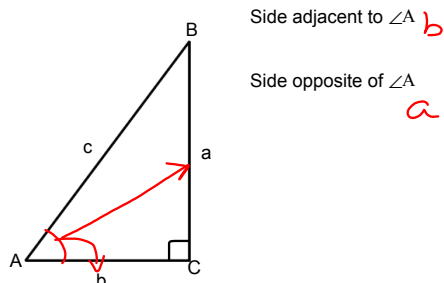


7-5 Apply the Tangent ratio

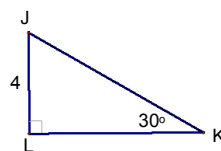
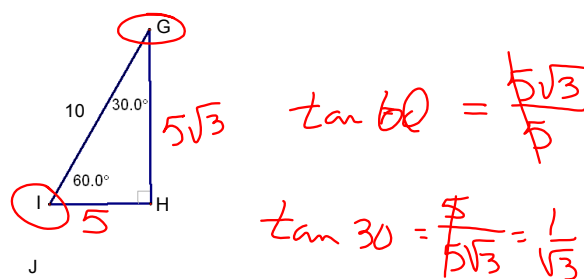
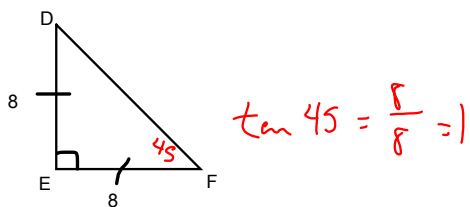
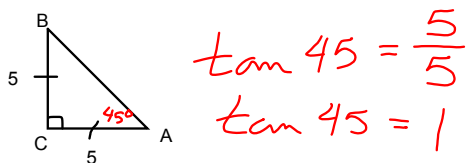
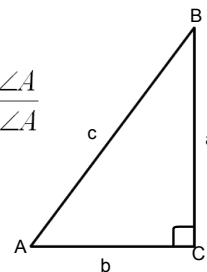


Trigonometry

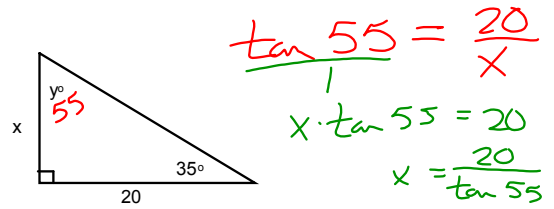
The tangent ratio

$$\tan A = \frac{\text{side opposite } \angle A}{\text{side adjacent } \angle A}$$

$$\tan A = \frac{a}{b}$$



Every angle has a specific tangent value



$$\tan 55 = \frac{20}{x}$$

$$x \cdot \tan 55 = 20$$

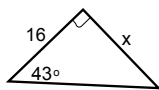
$$x = \frac{20}{\tan 55}$$

$$x \approx 14.0$$

$$\tan 35 = \frac{x}{20}$$

$$20 \tan 35 = x$$

$$14.0 \approx x$$

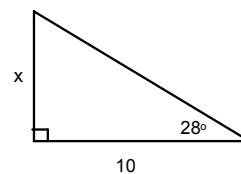


$$\tan 43 = \frac{x}{16}$$

$$16 \cdot \tan 43 = x$$

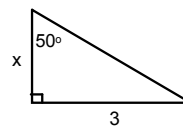
$$14.9 \approx x$$

Do:
1.



$$x \approx 5.3$$

2.



$$x \approx 2.5$$

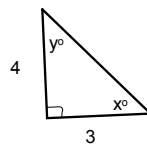
You can also find the angle if you have the legs.



$$\tan x = \frac{2}{2}$$

$$\tan^{-1}\left(\frac{2}{2}\right) = x$$

$$45^\circ = x$$



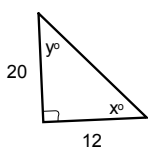
$$\tan x = \frac{4}{3}$$

$$\tan^{-1}\left(\frac{4}{3}\right) = x$$

$$53.1^\circ \approx x$$

$$\tan y = \frac{3}{4}$$

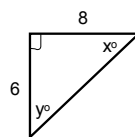
$$36.9^\circ \approx y$$



$$\tan x = \frac{20}{12}$$

$$\tan^{-1}\left(\frac{20}{12}\right)$$

$$x \approx 59.0^\circ$$



$$\tan x = \frac{6}{8}$$

$$x = 36.9^\circ$$

Do:

